



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/876,290	06/07/2001	Yoshiyuki Yanagisawa	09792909-5046	9540

33448 7590 03/23/2005

ROBERT J. DEPKE LEWIS T. STEADMAN
HOLLAND & KNIGHT LLC
131 SOUTH DEARBORN
30TH FLOOR
CHICAGO, IL 60603

EXAMINER

GRAYBILL, DAVID E

ART UNIT

PAPER NUMBER

2822

DATE MAILED: 03/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/876,290

Applicant(s)

YANAGISAWA ET AL.

Examiner

David E. Graybill

Art Unit

2822

PM

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 11-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 11-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 December 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

09/876,290

Art Unit: 2822

The reply filed on 12-13-4 is not fully responsive to the prior Office action because it fails to conform to the provisions of MPEP 714.03:

37 CFR 1.111. Reply by applicant or patent owner to a non-final Office action.

(b) In order to be entitled to reconsideration or further examination, the applicant or patent owner must reply to the Office action. The reply by the applicant or patent owner must be reduced to a writing which distinctly and specifically points out the supposed errors in the examiner's action and must reply to every ground of objection and rejection in the prior Office action. The reply must present arguments pointing out the specific distinctions believed to render the claims, including any newly presented claims, patentable over any applied references. If the reply is with respect to an application, a request may be made that objections or requirements as to form not necessary to further consideration of the claims be held in abeyance until allowable subject matter is indicated. The applicant's or patent owner's reply must appear throughout to be a bona fide attempt to advance the application or the reexamination proceeding to final action. A general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references does not comply with the requirements of this section.

(c) In amending in reply to a rejection of claims in an application or patent under reexamination, the applicant or patent owner must clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. The applicant or patent owner must also show how the amendments avoid such references or objections.

Where a bona fide response to an examiner's action is filed before the expiration of a permissible period, but through an apparent oversight or inadvertence some point necessary to a complete response has been omitted - such as an amendment or argument as to one or two of several claims involved or signature to the amendment - the examiner, as soon as he or she notes the omission, should require the applicant to complete his or her response within a specified time limit (usually one month) if the period for response has already expired or insufficient time is left to take action before the expiration of the period. If this is done the application should not be held abandoned even though the prescribed period has expired.

Specifically, all of the objections to the drawings have not been adequately addressed (see *infra*), and the reply fails to present arguments

09/876,290

Art Unit: 2822

pointing out the specific distinctions believed to render the newly presented claims patentable over the applied references.

Because the response appears to be bona fide, but through an apparent oversight or inadvertence the response is incomplete, and in order to continue to afford applicant the benefit of compact prosecution, the requirement to complete the response within a one month time limit is waived, the amendment is entered, and the claims are examined on the merits.

The following is a quotation of 37 CFR 1.84 Standards for drawings:

- (p) Numbers, letters, and reference characters.
- (1) Reference characters (numerals are preferred), sheet numbers, and view numbers must be plain and legible, and must not be used in association with brackets or inverted commas, or enclosed within outlines, e.g., encircled. They must be oriented in the same direction as the view so as to avoid having to rotate the sheet. Reference characters should be arranged to follow the profile of the object depicted.
- (2) The English alphabet must be used for letters, except where another alphabet is customarily used, such as the Greek alphabet to indicate angles, wavelengths, and mathematical formulas.
- (3) Numbers, letters, and reference characters must measure at least .32 cm. (1/8 inch) in height. They should not be placed in the drawing so as to interfere with its comprehension. Therefore, they should not cross or mingle with the lines. They should not be placed upon hatched or shaded surfaces. When necessary, such as indicating a surface or cross section, a reference character may be underlined and a blank space may be left in the hatching or shading where the character occurs so that it appears distinct.
- (4) The same part of an invention appearing in more than one view of the drawing must always be designated by the same reference character, and the same reference character must never be used to designate different parts.
- (5) Reference characters not mentioned in the description shall not appear in the drawings. Reference characters mentioned in the description must appear in the drawings.
- (q) Lead lines . Lead lines are those lines between the reference characters and the details referred to. Such lines may be straight or curved and should be as short as possible. They must originate in the immediate proximity of the reference character and extend to the feature indicated. Lead lines must not cross each other. Lead lines are required for each

09/876,290

Art Unit: 2822

reference character except for those which indicate the surface or cross section on which they are placed. Such a reference character must be underlined to make it clear that a lead line has not been left out by mistake. Lead lines must be executed in the same way as lines in the drawing. See paragraph (l) of this section.

(r) Arrows . Arrows may be used at the ends of lines, provided that their meaning is clear, as follows:

- (1) On a lead line, a freestanding arrow to indicate the entire section towards which it points;
- (2) On a lead line, an arrow touching a line to indicate the surface shown by the line looking along the direction of the arrow; or
- (3) To show the direction of movement.

The drawings are objected to as failing to comply with 37 CFR

1.84(p)(1) because reference characters 4 and 16 are used in association with brackets.

The drawings are objected to as failing to comply with 37 CFR 1.84(q) because reference characters 1 and 30 do not have required lead lines.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because the same reference character is used to designate different parts as follows:

Character 2 designates the entire sections of the different parts labeled FIG.2(b) and FIG.2(c) and the different part of FIG.5(b);

In FIG.2(d) lead lines of characters 2a, 2b, 2c and 2d do not extend to the feature indicated.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore,

09/876,290

Art Unit: 2822

the following claimed features must be shown or the features canceled from the claims. No new matter should be entered.

The entirety of claims 6, 12 and 13.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Information on current drawing correction practice is available at <http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/moreinfoamdtprac.htm>

The objection to the drawings will not be held in abeyance.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 12 and 13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the

09/876,290

Art Unit: 2822

inventor(s), at the time the application was filed, had possession of the claimed invention.

The undescribed subject matter is the entirety of claims 12 and 13.

Claims 6, 12 and 13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The undescribed subject matter is the entirety of claims 6, 12 and 13.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2 and 3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The following is a quotation of MPEP 2111.01 [R-1]:

THE WORDS OF A CLAIM MUST BE GIVEN THEIR "PLAIN MEANING" UNLESS THEY ARE DEFINED IN THE SPECIFICATION

While the ** claims of issued patents are interpreted in light of the specification, prosecution history, prior art and other claims, this is not the mode of claim interpretation to be applied during examination. During examination, the claims must be interpreted as broadly as their terms reasonably allow. This means that the words of the claim must be given their plain meaning unless applicant has provided a clear definition in the specification. In re Zletz, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989) (discussed below)>; MSM

09/876,290

Art Unit: 2822

Investments Co. v. Carolwood Corp., 259 F.3d 1335, 1339-40, 59 USPQ2d 1856, 1859-60 (Fed. Cir. 2001). One must bear in mind that, especially in nonchemical cases, the words in a claim are generally not limited in their meaning by what is shown or disclosed in the specification. It is only when the specification provides definitions for terms appearing in the claims that the specification can be used in interpreting claim language. In re Vogel, 422 F.2d 438, 441, 164 USPQ 619, 622 (CCPA 1970).

In claims 2 and 3 the scope of the term "box-shaped" is unclear because the term has no plain meaning, and it is not otherwise clearly defined in the disclosure. In particular, the scope of the term "box-shaped" cannot be determined because a box does not necessarily have a particular defined shape.

Claims 1-7 and 11-13 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are those between the following:

Claim 1, the position restriction mechanism, height restriction mechanism and alignment mechanism;

Claim 2, (a) the height restriction mechanism, alignment mechanism and box-shaped member, (b) the height restriction mechanism, alignment mechanism and base member, (c) the height restriction mechanism,

09/876,290

Art Unit: 2822

alignment mechanism and storage space, and (d) the height restriction mechanism, alignment mechanism and inner wall;

Claim 3, (a) the height restriction mechanism and alignment mechanism, (b) the height restriction mechanism and box-shaped member, (c) the height restriction mechanism and base member, (d) the height restriction mechanism and storage space, (e) the height restriction mechanism and inner wall (f) the height restriction mechanism and pins, (g) the height restriction mechanism and holes, and (h) the height restriction mechanism and substrate;

Claim 4, (a) the position restriction mechanism, height restriction mechanism and alignment mechanism, (b) the height restriction mechanism, alignment mechanism and pins, (c) the height restriction mechanism, alignment mechanism and base member, (d) the height restriction mechanism, alignment mechanism and portions, and (e) the height restriction mechanism, alignment mechanism and modules;

Claim 5, (a) the position restriction mechanism, height restriction mechanism and alignment mechanism, (b) the height restriction mechanism, alignment mechanism and pins, (c) the height restriction mechanism,

09/876,290

Art Unit: 2822

alignment mechanism and base member, (d) the height restriction mechanism, alignment mechanism and holes, and (e) the height restriction mechanism, alignment mechanism and modules;

Claim 6, (a) the position restriction mechanism, height restriction mechanism and alignment mechanism, (b) the height restriction mechanism, alignment mechanism and pins, (c) the height restriction mechanism, alignment mechanism and base member, (d) the height restriction mechanism, alignment mechanism and holes, (e) the height restriction mechanism, alignment mechanism and modules, (f) the height restriction mechanism, alignment mechanism and hole, and (g) the height restriction mechanism, alignment mechanism and substrate;

Claim 7, (a) the position restriction mechanism, height restriction mechanism and alignment mechanism, (b) the position restriction mechanism, alignment mechanism and cover member, and (c) the position restriction mechanism, alignment mechanism and modules;

Claim 11, (a) the position restriction mechanism and alignment mechanism, and (b) the height restriction mechanism and alignment mechanism.

09/876,290

Art Unit: 2822

Claim 12, (a) the position restriction mechanism, and alignment mechanism, (b) the height restriction mechanism and alignment mechanism, (c) the position restriction mechanism and pins, (d) the height restriction mechanism and pins, (e) the position restriction mechanism and sides, (f) the height restriction mechanism and sides, (g) the position restriction mechanism and modules, and (h) the height restriction mechanism and modules.

Claim 13, (a) the position restriction mechanism, and alignment mechanism, (b) the height restriction mechanism and alignment mechanism, (c) the position restriction mechanism and pins, (d) the height restriction mechanism and pins, (e) the position restriction mechanism and modules, and (f) the height restriction mechanism and modules.

In the rejections infra, generally, reference labels are recited only for the first recitation of identical claim elements.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

09/876,290

Art Unit: 2822

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-7 and 11-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Levy (5869353).

At column 4, line 8 to column 8, line 21, Levy teaches the following:

A multilayer semiconductor device assembly jig, comprising: a lateral position restriction mechanism 70, 74, 80 for positioning a plurality of stacked semiconductor modules 12 on a base member 68 with their respective lateral positions mutually restricted; a height restriction mechanism 80 for restricting an entire height of said semiconductor modules layered on said base member, and an alignment mechanism for providing alignment with reference to a mother substrate 74, and further wherein a plurality of the semiconductor modules are each comprised of a single semiconductor chip 14 secured to a printed wiring board 22 that has electrical connections 26, 60 on a top and bottom surface thereof and wherein a plurality of adjacent printed wiring board members are secured to one another by solder connections between top and bottom surfaces thereof; comprising a box-shaped member 74, 80 which is positioned on

09/876,290

Art Unit: 2822

said base member and having a storage space for storing said semiconductor modules in a layered state, wherein an inner wall of said storage space constitutes said lateral position restriction mechanism; wherein said alignment mechanism comprises a plurality of positioning pins 70 and positioning holes 76 for receiving the positioning pins which are correspondingly formed in said box-shaped member and said mother substrate; wherein said position restriction mechanism further comprises a plurality of positioning pins 70 secured in said base member and which are used for securing at least three different portions of an outer periphery of said semiconductor modules; wherein said position restriction mechanism further comprises a plurality of positioning pins secured in said base member and which pierce through positioning holes 36 formed in said semiconductor modules; wherein said positioning pins also pierce through a positioning hole formed on said mother substrate; wherein said height restriction mechanism further comprises: a cover member 74 secured over said semiconductor modules.

A multilayer semiconductor device assembly jig comprising: a lateral position restriction mechanism for positioning a plurality of stacked

09/876,290

Art Unit: 2822

semiconductor modules 32, 34 on a base member with their respective lateral positions mutually restricted, the lateral position restriction mechanism comprised of two opposed side walls 80 having a single stack of the semiconductor modules therebetween; a height restriction mechanism 74 for restricting an entire height of said semiconductor modules layered on said base member, said height restriction mechanism being located directly above the stacked semiconductor modules; and an alignment mechanism 70 for providing alignment with reference to a mother substrate 74 and further wherein a plurality of the semiconductor modules are each comprised of a single semiconductor chip secured to a printed wiring board that has electrical connections on a top and bottom surface thereof and wherein a plurality of adjacent printed wiring board members are secured to one another by solder connections between top and bottom surfaces thereof; wherein the alignment mechanism is comprised of a plurality of vertical pins arranged adjacent and in contact (at least thermal and indirect physical contact) with sides of the stacked semiconductor modules; wherein the alignment mechanism is comprised of a plurality of vertical pins that extend through the stacked semiconductor modules.

09/876,290

Art Unit: 2822

An assembly jig for a semiconductor module comprising: two pairs of substantially parallel opposed side walls (of 34, illustrated in FIG. 7, not labeled); a cover member 74 located over the side walls; a plurality of semiconductor modules 12 stacked and surrounded by the side walls such that their lateral motion is prevented by the side walls, wherein the semiconductor modules are comprised of at least one chip 14 and one wiring board 22; and further wherein the cover member is positioned such that it prevents vertical displacement of an uppermost semiconductor module; wherein pins 70 extend through portions of the cover member and the side walls.

Applicant's amendment and remarks filed 12-13-4 have been fully considered, are addressed by the rejections *supra*, and are further addressed *infra*.

Applicant asserts, "All that the Examiner has done is make the bald unsupported allegation that all of the elements of the claims are not described in the specification and there simply is no foundation for these assertions."

09/876,290

Art Unit: 2822

This assertion is respectfully deemed unpersuasive because applicant has not indicated where there is original support for most of the undescribed subject matter. In fact, applicant's only partial explanation is incorrect, and reveals a possible origin of the undescribed subject matter. In particular, without a particular disclosure citation, applicant states, "the box-shaped element is reference 14 that is located on the base member 5." On the contrary, in the instant disclosure, at page 19, lines 16-17, applicant discloses, "The assembly jig 3 has the main body 16 comprising the box-shaped body 15 formed integrally to the base 14." Furthermore, in contrast to applicant's statement *supra*, throughout the original disclosure, reference numeral 5 refers to the "mother substrate," and reference numeral 14 refers to the "base member." Therefore, for example, there is no disclosure of an embodiment comprising the base member, the mother substrate, and the height restriction member. Indeed, at page 18, lines 6-8, applicant explicitly discloses that the invention does not comprise the base member, the mother substrate, and the height restriction member: "The height restriction member 17 and the cover 18 are removed from the assembly jig 3. Then,

09/876,290

Art Unit: 2822

the assembly jig 3 is reversed by a handling apparatus and is placed on the mother substrate 5."

Applicant also requests reconsideration of the rejection of claims 1-7 and 11-13 under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, because, "Applicants submit that no elements are missing and that the specification clearly describes the subject matter."

This request is respectfully deemed unpersuasive because, as elucidated in the rejection, essential structural cooperative relationships of elements are missing. Furthermore, it is respectfully submitted that the alleged clear description of the subject matter in the specification does not overcome the rejection because limitations in the specification are not read into the claims.

Also, applicant argues that, "Levy provides no teaching or suggestion towards Applicant's currently claimed invention, which provides for an assembly jig to restrict the height of the resulting multi-layered semiconductor module to a consistent and repeatable value, and to suppress deformation due to warp of the layered printed circuit boards."

09/876,290

Art Unit: 2822

This argument is respectfully deemed unpersuasive because the scope of the claims is not limited to an invention which provides for an assembly jig to restrict the height of the resulting multi-layered semiconductor module to a consistent and repeatable value, and to suppress deformation due to warp of the layered printed circuit boards, and Levy is not necessarily applied to the rejection for this disclosure.

In addition, appellant proffers particular advantages for this alleged claimed invention.

Regardless, it is respectfully submitted that reasons for, or advantages resulting from, doing what the applied prior art has suggested, is not demonstrative of nonobviousness. In re Kronig 190 USPQ 425, 428 (CCPA 1976); In re Lintner 173 USPQ 560 (CCPA 1972). Indeed, the prior art teaches the claimed invention; therefore, the alleged reason or advantage is an inherent result of the prior art process. Furthermore, the prior art motivation or advantage may be different than that of applicant while still supporting a conclusion of obviousness. In re Wiseman 201 USPQ 658 (CCPA 1979); Ex Parte Obiaya 227 USPQ 58 (Bd. of App. 1985).

09/876,290

Art Unit: 2822

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

For information on the status of this application applicant should check PAIR:

Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alternatively, applicant may contact the File Information Unit at (703) 308-2733.

Telephone status inquiries should not be directed to the examiner. See MPEP 1730VIC, MPEP 203.08 and MPEP 102.

Any other telephone inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Graybill at (571) 272-1930. Regular office hours: Monday through Friday, 8:30 a.m. to 6:00 p.m.

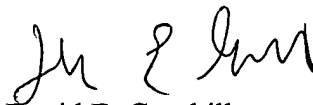
The fax phone number for group 2800 is (703) 872-9306.

Application/Control Number:

Page 19

09/876,290

Art Unit: 2822

A handwritten signature in black ink, appearing to read 'David E. Graybill', written in a cursive style.

David E. Graybill
Primary Examiner
Art Unit 2827

D.G.
16-Mar-05